

## Historic, archived document

Do not assume content reflects current scientific knowledge, policies, or practices.



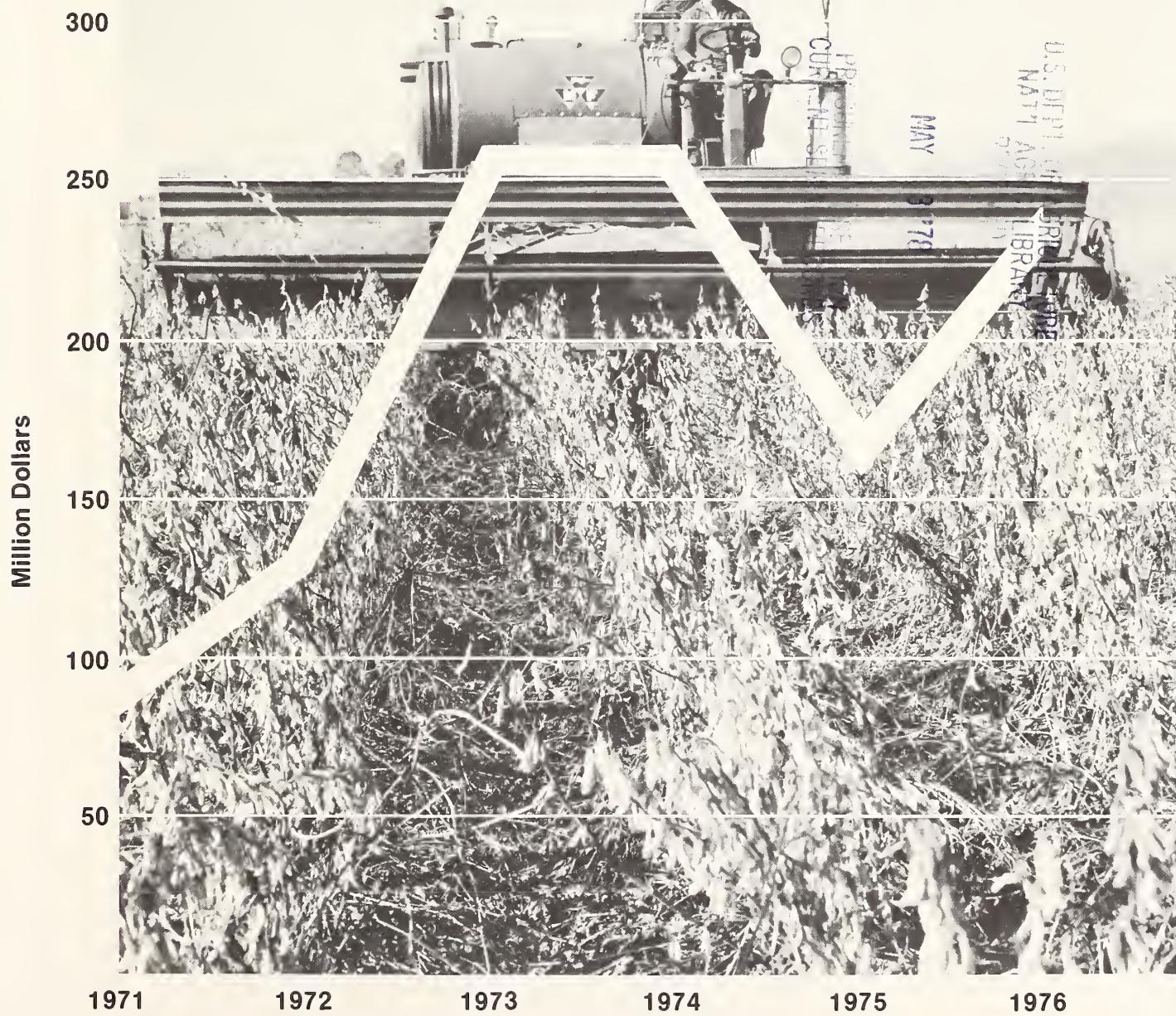
A281.9  
F76 Fm  
Cop. 2

5

U.S. Department of Agriculture  
Foreign Agricultural Service  
FAS M-281  
April 1978

# The East European Market for U.S. Soybeans and Products

U.S. Soybean  
and Products  
Exports to  
Eastern  
Europe





## FOREWORD

The East European market for soybeans and soybean products has been surrounded by uncertainties over the years. Available trade data have been fragmentary, and extensive transshipment trade among East European countries—as well as through West European nations such as West Germany—has heightened the data-collection problem.

One thing is evident, however: the region has been a strong growth market for U.S. soybeans and products since the turn of the decade. In 1976, for instance, it imported an estimated 1.68 million metric tons of U.S. soybeans (meal equivalent) and meal, or nearly 2½ times the 655,000 tons imported in 1971.

Recently, several factors have arisen to indicate a slowing of such growth, which already may have occurred in 1977. These factors include efforts by East European nations to boost their levels of self-sufficiency in oilseeds, hard-currency problems and consequent efforts to hold down imports, and growth in the region's imports of soybeans and products from Brazil.

On the other hand, consumers in Eastern Europe continue to require more and better protein foods. To meet the demand, countries of the region are expanding and modernizing their livestock industries—several producing for the export, as well as domestic, market—and are also boosting their production of livestock feeds. But domestic production of protein feeds has not kept pace, necessitating the larger imports of protein feed ingredients, including soybeans and soybean meal.

Imports of vegetable oils also have benefited from the consumption shift to high-quality foods. However, demand for oils appears to have risen less rapidly than that for oilseeds and meal, in part because of the high level of animal fat in consumer's diets.

Despite these conflicting indicators, continued long-term growth appears likely for East European imports of oilseeds, including U.S. soybeans and products.

In the interest of more focused planning for market development, the following overview of the market situation has been undertaken.

The authors wish to thank Norvel Francis for his invaluable assistance in getting this report started. Also, they would like to extend their appreciation to the Foreign Commodity Analysis Division of FAS and to the Foreign Demand and Competition Division of ESCS for supplying and updating statistics and to the U.S. agricultural attachés in the East European countries for their assistance.

# Contents

	Page
Introduction . . . . .	1
Imports of Soybeans and Products . . . . .	1
Domestic Supply and Demand . . . . .	2
Economic Overview . . . . .	2
Market Development . . . . .	3
Bulgaria . . . . .	3
Oilseed Situation . . . . .	3
Livestock Situation . . . . .	4
Problems . . . . .	4
The Future . . . . .	4
Czechoslovakia . . . . .	5
Oilseed Situation . . . . .	5
Livestock Situation . . . . .	5
Problems . . . . .	6
The Future . . . . .	6
German Democratic Republic . . . . .	6
Oilseed Situation . . . . .	6
Livestock Situation . . . . .	6
Problems . . . . .	7
The Future . . . . .	7
Hungary . . . . .	7
Oilseed Situation . . . . .	7
Livestock Situation . . . . .	8
Problems . . . . .	8
The Future . . . . .	8
Poland . . . . .	9
Oilseed Situation . . . . .	9
Livestock Situation . . . . .	11
Problems . . . . .	11
The Future . . . . .	11
Romania . . . . .	12
Oilseed Situation . . . . .	12
Livestock Situation . . . . .	14
Problems . . . . .	14
The Future . . . . .	14
Yugoslavia . . . . .	14
Oilseed Situation . . . . .	14
Livestock Situation . . . . .	15
Problems . . . . .	16
The Future . . . . .	16
Appendix. . . . .	17

# The East European Market for U.S. Soybeans and Products

By

John Reddington and James Iso

## INTRODUCTION

### Imports of Soybeans and Products

**Oilseeds and meal.** In the wake of rapid expansion and modernization of their livestock industries, the seven countries of Eastern Europe have sharply increased their imports of oilseeds and products—and soybeans and soybean meal in particular. The region's imports of soybeans and meal more than doubled between 1971 and 1976, from 1.59 million metric tons to 3.43 million. Most of these imports moved as meal, although soybean purchases have risen also as a result of expansion in crushing capacity.

The United States has long dominated this market and, in turn, has counted soybeans and soybean meal as top agricultural exports to Eastern Europe. In 1976, this country accounted for an estimated 1.68 million tons of East European imports of soybeans and meal, for a 2½-fold gain from 1971.

Yet U.S. ascendancy in the market has been aggressively challenged by Brazil, which by 1976 was supplying around 1.5 million tons of Eastern Europe's soybean and meal imports, compared with only 260,000 in 1971. Estimates for 1977 show that country overtaking the United States for the first time—supplying 1,575,000 tons, compared with 1,525,000 estimated for the United States.

Heretofore, Brazil's market growth has come primarily at the expense of imports from Western Europe, which dropped by more than half between 1971 and 1976. But because most of the West European product originated from U.S. beans crushed on the Continent, that region's loss represented an indirect loss for the United States also.

Statistics on Eastern Europe's total imports of oilseeds and meal are incomplete. Available data show rapid growth in the early 1970's, with imports of oilseed meal rising 60 percent between 1971 and 1972 alone. Estimates for 1977, on the other hand,

indicate a dip in soybean meal imports to around 3.8 million tons from 3.9 million estimated for 1976.

During 1956-70, the United States and the Soviet Union were the major sources of total oilseed imports by Eastern Europe. However, the USSR's market share has declined in line with recent setbacks in its sunflowerseed crop, plus increased domestic use of oilseed meal in livestock feed. And, as already mentioned, U.S. dominance is being eroded by Brazil's strong advance in the soybean and soybean meal market.

East European countries also import sizable quantities of Indian peanut meal and in the last few years have been taking some Argentine soybean meal.

Among the individual countries, Bulgaria and Romania export some sunflowerseed and meal, and Poland occasionally exports rapeseed.

Poland also ranks as the largest single importer of oilseed meal, taking over a million tons in both 1976 and 1977. Next in line is the German Democratic Republic (GDR), with 1976 oilseed meal imports estimated at 900,000 tons, followed by Czechoslovakia with 700,000. Imports by the other countries in 1976 varied between 210,000 tons for Bulgaria and 495,000 for Hungary.

In all these markets, soybean meal was the primary oilseed meal imported, and in most cases the United States was the leading supplier. However, Brazil's presence was conspicuously evident also. Hungary, for example, is believed to have imported more than 500,000 tons of meal in 1977—up 3-5 percent from estimated 1976 imports. But Brazil captured most of this market, while the United States supplied 46,623 tons in 1977 due to higher U.S. prices and quality problems.

Hungary, like all members of the Council for Economic Mutual Assistance (CEMA), wants to purchase the most protein for the least money. Therefore, Brazilian meal enjoys a distinct advantage since it is 46-48 percent protein and reportedly can be sold at the same price as meal of only 44-percent average protein.

*Mr. Reddington is with Foreign Market Development, Oilseeds and Products, FAS, and Mr. Iso is with Planning and Evaluation, FAS.*

Overall, the so-called northern countries—Czechoslovakia, East Germany, and Poland—are expected to be importers of protein feed indefinitely. East Germany and Czechoslovakia must import protein feeds to assure that their livestock industries can supply domestic demand for meat, while Poland requires imported feed ingredients to supply domestic demand for meat and to maintain its export markets as well.

The southern countries—Yugoslavia, Hungary, Bulgaria, and Romania—have increased livestock production faster than crop output. Most of them will not be able to expand domestic production of oilseed meal to meet their demands. The notable exception, Romania, has the capability (weather permitting) to become self-sufficient in protein meal and possibly a net exporter.

The other three southern countries are potential long-term importers. However, their sizable domestic sunflowerseed crops, and potential for increasing soybean output indicate that these countries will not become as dependent on imports as the northern countries.

**Food oil.** Imports and consumption of food oil by Eastern Europe are influenced by several factors. Varying somewhat by country, the volume consumed is affected mainly by domestic availability of oilseed crops. It also is influenced by internal economics.

Historically, animal fat byproducts from the large swine industries of Eastern Europe have been the preferred food fats. These fats still play an important role, although vegetable oils are gaining acceptance as tastes change and personal incomes rise.

Soybean oil, however, is not well known in the market, despite the fact that imports of it are on the rise.

Because soybean oil has not been an identified oil—and therefore does not benefit from consumer preference—it usually is blended with other vegetable oils.

The increasing use of hardened oils, such as margarine, has opened another market for soybean oil.

Greater demand for meal from the livestock industry has increased the domestic crush of imported soybeans, boosting the volume of available soybean oil. Nonetheless, imports of vegetable oils will probably be necessary to satisfy expanding demand. Given this ongoing need, consumer education would be helpful in broadening acceptance of soybean oil in East European diets.

## Domestic Supply and Demand

The two major oilseed crops in Eastern Europe are sunflowerseed and rapeseed, with rapeseed dominating in the northern countries and sunflowerseed in

the south. Oilseed production in the region reached 3.6 million tons in 1976, or 10 percent more than the record 1975 crop. Soybean production is still limited. In 1976, Eastern Europe's total oilseed area—consisting essentially of rapeseed, sunflowerseed, and soybeans—was nearly 2 million hectares, or 7 percent over the previous year's.

Rapeseed production hit 1.5 million tons in 1976 for a 16-percent gain over the record 1975 crop. Sunflower production totaled approximately 1.66 million tons, or 4 percent more than in 1975. Soybean production was about 425,000 tons—an increase of 61,000 tons over 1975's.

Average per-capita income within each of the seven East European countries has been forecast to rise by 4-9 percent per annum during 1970-80. This increase is expected to shift consumption from grain foods to more livestock products, and in turn boost demand for feed ingredients, such as oilseed meal, and meat extenders, such as soy protein.

East European daily caloric intake in 1976 averaged just over 3,000, while protein consumption ranged from 76 to 93 grams. These levels parallel caloric and protein intakes in most Western nations. Eastern Europe's population has been projected to increase by 10 million people between 1970 and 1980, which in itself will boost demand for meat, milk, and eggs, as well as fats and oils.

## Economic Overview

East Europeans are becoming increasingly dependent on Western capital, management, and marketing abilities to bolster their own development. This dependence has imposed heavy financial burdens. Some East European countries, for example, have had to earmark as much as 20 percent of their annual hard currency export earnings for debt repayment.

Economies in the region have shifted from an agricultural orientation to increased industrialization. Agricultural populations now range from a low of 14 percent of total population in East Germany to a high of 52 percent in Romania. Agriculture's contribution to gross domestic product (GDP) is low, ranging from less than 10 percent in East Germany to 24 percent in Poland.

The northern countries are basically grain importers. Recognizing the hazards of depending heavily on grain imports, they have dedicated their recent 5-year plans to becoming more self-sufficient in grain production.

The southern nations, on the other hand, are grain exporters.

Although West European and Japanese firms have cultivated long-term trade relationships in Eastern Europe, the United States has maintained a commanding lead in exports of agricultural commodities to the area. Far in the forefront of these

exports are animal feeds, grains, and soybean products.

A big increase in U.S. farm exports to Poland helped boost U.S. agricultural exports to Eastern Europe to a record \$926 million in 1976 from the previous high of \$820 million in 1974. Yugoslavia and Hungary were the only countries showing declines in imports from the United States.

Owing primarily to these large agricultural exports, the United States had a trade surplus with Eastern Europe in 1975. Grain agreements between the United States and East European nations, plus new opportunities for U.S. firms under 1976-80 5-year plans, resulted in another sizable surplus in 1976.

East European trade with the West is handicapped, however, by foreign exchange shortages and recent credit difficulties. As a result, credit-short countries are evaluating priorities and taking steps to restrict imports.

These countries also have been seeking favorable credit terms with the West. In the competitive world markets for feed proteins and food oils, credit lines have been increasingly used as purchase incentives, particularly among countries that have economic problems and are seeking credit. Low-interest credit through the U.S. Commodity Credit Corporation (CCC) currently is available to Poland, and Romania will be eligible some time in 1978. To be eligible for CCC credit, the other East European nations must first obtain a U.S. Presidential waiver of the prevailing provisions governing this credit.

Currently, soy oil, soy meal, soybeans, and soy proteins are eligible for CCC credit.

## Market Development

To capitalize on the opportunities for U.S. soybeans and soybean meal in Eastern Europe, the Foreign Agricultural Service, together with the American Soybean Association, will carry out market development activities in Eastern Europe through 1985 that focus on boosting use of soybean meal in mixed feeding rations. In addition, activities will be developed to ensure that the oilseed crushing industry is producing high-quality soybean oil and soybean meal.

This will be accomplished by conducting trade-servicing activities. Seminars will be conducted to acquaint (1) feed manufacturers and livestock producers with the value of utilizing soybean meal in livestock feeding rations, and (2) soybean processors with the technology for producing high-quality meal and soybean oil. U.S. animal nutritionists will cooperate with livestock producers and feed manufacturers to educate them on efficient use of soybean meal in feed formulas, and U.S. oil specialists will visit processing plants and make recommendations on improving plant production.

Soy protein seminars and related activities will be amplified so as to maintain and expand the use of this product throughout Eastern Europe. Soy protein activities will be important in the coming years to some Eastern European countries if increased meat consumption is to be realized.

These activities will be complemented by feeding trials, periodic distribution of technical information, and visits to the United States to view production and marketing of soybeans and products.

## BULGARIA

Bulgaria's current 5-year plan calls for a substantial increase in production of feed crops. In 1976, Bulgaria was one of two East European countries that showed an increase in total meat production. This had led to increased meat exports and in 1976 contributed to a 72 percent reduction in Bulgaria's trade deficit.

Soybean crushing capacities are slated to expand in Bulgaria by 1979, probably bringing another surge in imports, since crushing only domestically produced soybean would likely leave capacity underutilized. In 1977, soybean meal imports declined while soybean imports improved.

## Oilseed Situation

Production. The United States not only competes with Brazil, but also with Bulgaria in soybeans. Bulgarian soybeans have been gradually increasing in importance and are projected in the country's 1976-80 plan to become a major crop. Although production is presently at 70,000 tons, up from 13,000 in 1972, Bulgaria has ambitious plans to increase production in the next 5 years to meet the growing demand for protein meals. Increased domestic production would help alleviate a dependency on imports of soybean meal; however, it is unlikely that production will fulfill domestic needs.

Indications are that soybean processing plants will be built in the near future. Consequently, imports are expected to change from soybean meal to soybeans to ensure optimum use of Bulgaria's soybean production facilities.

Another area of competition for soybeans is domestically produced sunflowerseed meal. Bulgaria's major oilseed crop is sunflowerseed, production of which averages about 420,000 tons per year. However, output fell from 462,000 tons in 1971 to 355,000 in 1976 as a result of a prolonged drought in Bulgaria and other northern countries. Since 1972, in fact, sunflowerseed production has declined steadily, while soybean production has increased. Soybean area expansion plans are expected to make further

inroads on plantings of sunflower, along with barley and wheat.

**Imports.** In recent years Bulgaria has been largely an importer of soybean meal, along with small quantities of peanut meal and sunflowerseed meal. These soybean meal imports have increased significantly since 1971 in response to an expanding livestock industry, as can be seen from the tabulation below (in metric tons):

1971 .....	62,150
1972 .....	88,373
1973 .....	99,266
1974 .....	228,000
1975 .....	180,000
1976 .....	219,800

In 1977, Bulgaria imported 645 tons of soybeans from the United States, while in 1976 it imported only 8 tons. Soybean meal imports from the U.S. declined from 10,687 tons in 1976 to 0 in 1977.

**Oilseed crushing.** Bulgaria has a combined crushing capacity of 400,000 tons with 2 large crushing plants and about 20 small plants.

## Livestock Situation

Bulgaria has been striving to increase domestic consumption of meat and to widen its meal export market. Total meat production has expanded from 522,000 tons in 1971 to 702,000 in 1976. This includes significant increases in pork production (from 204,000 tons in 1971 to 345,000 in 1976) and poultry production (111,000 tons in 1971 to 140,000 in 1976). Total meat production probably amounted to nearly 750,000 tons in 1977 and is projected to reach 886,000 in 1980.

The Government of Bulgaria is moving toward regional specialization in feed crops and livestock. One aim is to use more homegrown grain and oilseed meal in mixed feeds. In years with good weather, this has been feasible for feedgrains. However, for oilseed meals, increasing demand is likely to keep imports high, even as the overall percentage of meal imported declines.

Bulgaria's feed-mixing industry is comprised of 30 plants producing over 2.5 million tons of mixed feed and concentrates, of which over 40 percent is used for poultry and the remainder for hogs.

The rapid growth in livestock numbers in Bulgaria (a 23-percent increase since 1971) has greatly increased feed requirements. Bulgaria is the only other Eastern Europe country outside of Romania that showed an increase in total meat production in 1976. Per capita consumption of meat in Bulgaria has

shown a steady increase since 1970, rising from that year's 41 kilograms to around 60 kilograms a year in 1976. A further sharp gain to 75 kilograms per capita is seen for 1980.

Soy meal consumption was 220,000 tons in 1975, about 240,000 in 1976, and an estimated 260,000 in 1977. As livestock production increases, so should soy meal imports.

The following calculations give an idea of the upper levels of market potential for soybean meal: Under optimum conditions for growth potential, a feed mixture consisting of soybean meal, corn, and roughage used to produce the best protein requirements in livestock have the following conversion ratios to produce a pound of meat:

0.29 kilograms of soy meal per 1 kilogram of beef

0.96 kilograms of soy meal per 1 kilogram of poultry

0.81 kilograms of soy meal per 1 kilogram of swine

Production of the major livestock products in 1976 included 114,000 tons of beef and veal, 345,000 tons of pork, and 140,000 tons of poultry meat. If the optimum feed rations are applied to these production levels, the total soybean meal needed to meet these requirements would be 447,660 tons. However, it must be realized that this figure in all likelihood will not be met since Bulgaria produces sunflowerseed and other factors are involved; i.e., price, supply, and demand. Moreover, Bulgarians have a traditional preference for sunflowerseed, which will tend to limit increases in usage of soybean meal.

## Problems

Other problems that may have a limiting effect on soybean meal imports include: Increased domestic yields of oilseeds, limited oilseed crushing capacity, uneconomic utilization of some domestic feed crops, and labor inefficiencies.

Hard currency shortages also could impede increased imports of soybean meal. To maximize their hard currency reserves, Bulgarians reportedly watch for optimum trading opportunities with non-CEMA countries. In the past, they have shown initiative in utilizing a full spectrum of financing arrangements for soybean meal, though not with the United States.

## The Future

In spite of increasing domestic production, the country will have to continue importing meal or beans. The Minister of Foreign Trade for Bulgaria recently said that U.S. soybeans could figure into Bulgaria's trade expansion and that Bulgaria is also interested in possible production of soybean meal.

The Bulgarians have recognized the superiority of soybean meal and it is hoped that they can be persuaded to import more U.S. soybeans and meal through a two-phase program to be initiated through 1985. The preliminary objective will be to promote the use of U.S. soybean meal in livestock feeding rations as a means of fulfilling growing protein meal demand. Least-cost formulations using soybean meal will be demonstrated to the Bulgarians in feeding trials to provide tangible evidence of the nutritional and economic value of using soybean meal.

The second phase will be initiated when soybean crushing plants come on stream. The program objective will be to ensure production of quality soybean meal and soybean oil by providing technical assistance to plant managers. This assistance will include visits of U.S. soybean meal and soybean oil production specialists, complemented by production seminars, distribution of technical information, and visits to the United States to view soybean facilities and production techniques.

Activities will also be implemented to encourage use of the domestically produced soybean oil as salad and cooking oil.

## CZECHOSLOVAKIA

The Government of Czechoslovakia is striving to achieve self-sufficiency in food and feed production. Grain output has advanced, and the country has reached or nearly reached self-sufficiency in all animal products. But it can supply only 25-28 percent of domestic protein requirements and in both 1976 and 1977 had to import an estimated 700,000 tons of oilseed meal annually, with the largest share coming from the United States.

Mainly because of a poor agricultural season marked by drought, Czechoslovakia's economy in 1976 expanded less than the planned rate. The country's trade deficit that year was about \$600 million, up 70 percent from that of 1975. Output of the foodstuffs sector was below plan, and crop production was particularly low, dropping 6 percent in the wake of a 3 percent decline in 1975.

## Oilseed Situation

**Production.** Among the East European countries, Czechoslovakia ranks last in oilseed production. In 1976, it produced only 131,000 tons of rapeseed and 12,000 tons of flaxseed. Sunflowers also are produced, but on a limited scale, and experimental production of soybeans has been unsuccessful. Some observers attribute this poor performance to a lack of knowledge about proper methods of cultivation and dissatisfaction among farmers with the diversion of

good land to erratically yielding soybeans. According to USDA's Economics, Statistics, and Cooperatives Service, annual average production of oilseeds during 1966-70 was 70,000 tons, which increased to 100,000 tons during 1971-75. For 1976-80, annual average production is projected at 240,000 tons—an increase of 118 percent over that of 1971-75.

**Imports.** Czechoslovakia has increased takings of soybean meal substantially in recent years, including 178,808 tons from the United States in 1976, compared with only 78,657 in 1971. However, in 1977, it imported from the United States only 102,276 tons of soybean meal. Consumption of soybean meal also has increased steadily, from 160,000 tons in 1970 to about 400,000 in 1976.

The country's goal of self-sufficiency in agriculture will not preclude future imports of soybean meal. However, price will be a primary consideration, and U.S. soybean meal will sell in the market only if it is price competitive with soybean meal from Brazil.

**Oilseed crushing.** Czechoslovakia has fairly large, integrated oilseed crushing plants and two smaller mills that primarily process rapeseed and sunflowerseed. Combined crushing capacity of these mills amounts to 250,000 tons of oilseeds per year, with rapeseed and sunflowerseed the major oilseeds processed.

Soybean oil does not seem to have a large market in Czechoslovakia, since consumers still use mainly rapeseed, linseed, and sunflowerseed oils in their salad and cooking oils. There are plans for reconstruction of an existing oilseed processing plant to include larger quantities of soybeans in its production. Also, another plant has been rebuilt and future imports of soy oil should drop considerably.

## Livestock Situation

Expanded livestock production has accounted for a large portion of the increase in soybean meal imports. Total meat production has risen from 1,157,000 tons in 1971 to 1,330,000 in 1976 and is projected to reach 1,840,000 by 1980. Pork production—the major livestock industry—rose from 624,000 tons in 1971 to 730,000 in 1976. Its continued growth will undoubtedly result in greater demand for protein feeds. Beef and veal production increased from 373,000 tons in 1971 to 415,000 in 1976, and poultry meat production during that period rose from 111,000 tons to 144,000.

Czechoslovakia has the highest meat consumption in all of Eastern Europe. Poultry consumption, close to zero 10 years ago, now is about 13.6 kilograms per capita. Pork, however, continues to be the major meat consumed, accounting for about 55 percent of total meat consumption.

Among other livestock products, output of milk rose 9 percent between 1971 and 1976, while that of eggs was up 12 percent.

Output of grains has also risen, from 8,774,000 tons in 1971 to 9,320,000 in 1976. This represents a 6 percent increase in 6 years.

With Czechoslovakia maintaining the highest meat consumption in Eastern Europe, soybean meal use has risen by some 50 percent between 1971 and 1976. The mixed feed industry consumes about 825,000 tons of protein feeds annually and is composed of some 300 small feed mills. However, many inefficient plants are being closed or consolidated, which is expected to leave around 160 modern mills in operation.

## Problems

In 1951, the United States revoked its most-favored-nation treatment of Czechoslovakia. This has hindered bilateral trade expansion, according to the Czechoslovak Government, by curtailing Prague's opportunities to increase dollar earnings. The Government also maintains that the revocation contributed to a hard currency shortage, which has been a major obstacle to increased imports of U.S. soybeans and soybean meal.

## The Future

The Czechoslovaks recognize the benefits of using soybean meal to improve livestock feeding efficiency. Their goal of self-sufficiency in agriculture will not preclude imports of oilseed meal. However, price will be a primary consideration, and U.S. soybean meal will sell in the market only if it is price competitive with oilseed meals from Brazil and India. If U.S. prices are competitive, poultry feeding demonstrations would help to expand the oilseed market.

On the food oil side, educational efforts aimed at broader acceptance of soybean oil as an identified, quality food oil would enhance its acceptability and increase consumption.

Indications are that meat consumption will continue to increase which will require more protein meals. To capitalize on this situation, marketing efforts will concentrate on increasing the use of soybean meal in mixed feed rations and upgrading oilseed crushing facilities to ensure quality soybean oil and meal.

## GERMAN DEMOCRATIC REPUBLIC

Increasing consumption of meat, spurred by industrial prosperity, has placed heavy pressures on the livestock sector of the German Democratic Republic

(GDR). Production of domestic oilseed meal has not kept up with the accelerating demand from the livestock industry, and soybean meal is now one of the country's largest agricultural imports.

## Oilseed Situation

**Production.** Rapeseed is by far the major oilseed crop in the GDR. In 1975, the GDR produced a record 363,000 tons of rapeseed. Production dropped to 320,000 tons in 1976 owing to a lack of adequate rainfall.

Soybeans are not now produced domestically, nor likely to be produced in the foreseeable future. There is some production of flaxseed, but the major oilseed crop is rapeseed.

**Imports.** GDR oilseed meal imports reached 900,000 tons in 1976, with soybean meal—a rising import in recent years—accounting for the bulk of this trade. In 1976 some 760,000 tons of soybean meal were imported, compared with 751,000 in 1975. This makes the GDR one of the largest users of soybean meal in Eastern Europe. A sizable share of these imports comes from the United States via West Germany. Brazil also supplies some of East Germany's needs through West German crushers.

Most of the remaining oilseed meal imports are in the form of sunflowerseed, principally from the USSR.

Also, fishmeal is imported and represents a potential competitor for U.S. soybeans and products imported into the GDR. In fact, there are indications that fishmeal already is used widely in livestock feeding rations and thus competing directly with soybean meal utilization. However, owing to the recent high prices of fishmeal, competition may be dropping. In 1977, the GDR imported 24,435 tons of soybean meal directly from the U.S.

**Oilseed crushing.** Since it has few large oilseed crushing plants, the GDR has turned to West Germany for sizable quantities of finished products. West Germany's sophisticated crushing capability, complete with good transportation infrastructure, spawned this development.

## Livestock Situation

The GDR became self-sufficient in livestock production during the late 1960's. Total meat production in 1968 was 1,086,000 tons and increased to 1,660,000 tons in 1976. As a result, meat imports have declined over the same period.

East Germany is the most industrialized country in Eastern Europe and this industrial prosperity has contributed to expanded demand for meat. Per capita

meat consumption was 66 kilograms in 1970 and increased to 78 kilograms in 1975, second only to Czechoslovakia's 81 kilograms.

In 1976, market supplies of livestock products dropped by 2 percent owing to drought conditions in feedgrain areas. Beef and veal production fell from 417,000 tons in 1975 to 405,000 in 1976. Pork production fell 3 percent during the same period—from 1,132,000 tons to 1,080,000. These declines were offset by an 11 percent increase in poultry production, from 127,000 tons in 1975 to 134,000 in 1976.

It is projected, however, that East German livestock production will expand further, thereby raising the demand for protein meals. This growing demand for increased quantities of protein meal provides a market potential for U.S. soybean meal.

## Problems

Direct trade between the United States and East Germany is likely to increase at the expense of indirect trade via West Germany. The main reason for this prospective change is that West Germany, under its obligations as an EC member, must reassess special ties with East Germany. East German imports from West Germany traditionally have been of meal, whereas soybeans will become more important if the country buys directly from the United States. Such a move could place a production strain on the GDR's crushing industry, while putting more food oil into an almost-saturated market. This strain could adversely affect soybean and/or meal imports.

## The Future

The growing demand for increased quantities of protein meal provides an excellent opportunity for U.S. soybean meal. Further, the present feed formulation for livestock rations provides additional opportunities for soybean meal if the East Germans can be encouraged to reduce usage levels of fishmeal in the rations and increase the levels of soybean meal.

To capitalize on this market, U.S. emphasis through 1985 will be on promoting increased use of soybean meal in mixed feeding rations through a trade-servicing approach.

## HUNGARY

A prolonged drought in Hungary in 1976 reduced yields of many crops, resulting in a cut in domestic feed supplies and contributing to a decline in swine and beef production. The country's economic plan for 1977 called for a 7-8 percent increase in agricul-

tural production, but in view of the disappointing results of 1976, and the relatively poor 1975 crop, Hungary appears unlikely to meet goals set in its current 5-year plan.

Soybean production is still an experimental crop in Hungary, although area has been growing in recent years. Further developments in soybean production are limited by the lack of processing capacity.

## Oilseed Situation

**Production.** By far the most important oilseed in Hungary is sunflowerseed, followed by rapeseed. The Hungarian Government has stressed production of protein meals, including soybean meal, in order to meet demands of its growing livestock industry. Between 1973 and 1976, soybean area rose from 10,000 hectares to 36,000. However, area planted to this still experimental crop is believed to have grown little, if at all, in 1977.

TABLE 1.—HUNGARIAN OILSEED PRODUCTION, 1971-76

[In 1,000 metric tons]

Year	Sunflowerseed	Rapeseed	Soybeans
1971 .....	149	71	-
1972 .....	132	52	-
1973 .....	152	68	-
1974 .....	120	45	15
1975 .....	154	65	41
1976 .....	165	66	55

Source: *Eastern Europe Agricultural Situation*  
Foreign Agricultural Economic Report No. 134

Moreover, news reports have indicated some variance in crop estimates. According to one report, growing demand for livestock feed has prompted the Hungarian Government to stress greater "involvement in domestic production of corn." The report indicated that Hungary may even suspend plans to expand soybean production so as to concentrate on expanding corn production during the prevailing 5-year plan period. Reasons given for the reduction included Hungary's limited oilseed crushing capacity and expectations that the world price ratio between corn and soybeans would be maintained at 2 to 1.

**Imports.** Hungary imports minimal quantities of soybeans and soybean oil; however, soybean meal imports have been substantial in recent years. At one time, the United States was the major exporter of soybean meal to Hungary, but lower prices of Brazilian soybean meal and quality problems with U.S. meal have cut into the U.S. market share significantly.

Soybean meal imports from the United States were valued at \$14.5 million in 1976 and went mainly into poultry and hog feeds. In recent years, the Hungarian poultry industry has absorbed between 40 and 45 percent of the country's imported protein feeds. Hungary uses large quantities of sunflowerseed oil. Sunflowerseed oil blended with rapeseed oil is a popular choice for cooking quality. Also widely consumed is corn oil, production of which is expected to increase in line with planned expansion of area planted to corn. Soybean oil is essentially used in oil blends and is virtually unknown to consumers as an identifiable oil.

TABLE 2.—U.S. AND BRAZILIAN EXPORTS OF SOYBEAN MEAL TO HUNGARY, 1971-76

Year	United States		Brazil	
	Quantity	Share	Quantity	Share
	Metric tons	Percent	Metric tons	Percent
1971 .....	146,708	61	36,800	15
1972 .....	57,558	24	54,700	23
1973 .....	86,590	28	36,100	12
1974 .....	117,791	25	110,100	24
1975 .....	195,812	50	112,100	29
1976 .....	70,359	19	179,773	49
1977 .....	46,623	(1)	(1)	(1)

<sup>1</sup> Not available.

Source: *Eastern Europe Agricultural Situation*  
Foreign Agricultural Economic Report No. 134

**Crushing plants.** There are about 200 mixed feed plants throughout Hungary producing 3.8 million tons of commercial mixed feed. In addition, there are five large crushing plants with a combined crushing capacity of 250,000 tons.

## Livestock Situation

The dry weather that affected plant production during 1976, had its adverse effect on the livestock industry as well. Feed supplies and forage crops were reduced, resulting in depletion of domestic supplies and higher production costs.

As a result, 1976 was a bad year for Hungary's meat production sector.

Beef and veal production fell from 243,000 tons in 1975 to 216,000 in 1976. Although the number of hogs increased from 6,953,000 head in 1975 to 7,855,000 in 1976, pig slaughter declined, resulting in a sharp decline in output of pork: from 1,132,000 tons in 1975; production fell 16.5 percent to 1,080,000 tons in 1976. Despite the drought, poultry meat production rose from 280,000 tons in 1975 to 308,000 in 1976. Hungary is an exporter of poultry

meat and in 1976 exported about 103,000 tons of poultry meat.

Dairy production—one of the areas of emphasis recently—also held up well during the drought and, in fact, experienced one of its best seasons ever during 1976. That year, milk production increased some 4 percent to a record 2,060,000 tons.

Total red meat production was 1,345,000 tons, compared with a record 1,474,000 tons in 1975. Per capita production of red meat totaled about 94 kilograms, while domestic consumption dropped to about 62 kilograms per capita. Therefore, some 32 kilograms per capita were available for export to Western Europe. However, because of the poor production of livestock in 1975, exports of beef cattle for slaughter declined in 1976.

More than 500 large-scale state and collective farms regularly supply Hungary's expanding poultry processing industry. They are efficient, with up-to-date production techniques and feeding methods. The country's rapid adjustment to modern feeding and production technologies has resulted in expanded use of protein feeds in rations. The largest single consumer of these feeds is the poultry industry, which typically absorbs about 35 percent of all imported protein feeds, including large amounts of soybean meal.

## Problems

Hungary, like many East European countries, suffers from hard currency shortages. However, the country's trade deficit declined from \$408 million in 1975 to \$230 million in 1976. To help diminish further its hard currency trade deficit, Hungary is expected to be very price conscious when importing protein feeds.

## The Future

The present emphasis on increasing and intensifying livestock production will continue to increase net deficits in high-protein feed ingredients. Indications are that soybean meal usage as yet has not reached a peak; however, there also is no indication that commitment to soybean meal is so strong as to prevent the product's replacement by other meals. Therefore, program objectives will need to be developed to promote soybean meal as an inherently better component of livestock feed than other available feed ingredients. Hungary depends on the West for about 80 percent of its protein meal requirements. With the emphasis on expansion of the livestock industry, it can be expected to increase soybean meal imports further over the next few years.

Since it already is using large quantities of sunflowerseed oil, Hungary is not expected to make sizable imports of soy oil in the near future. If plans for increased soybean crushing facilities are carried through, however, the Hungarians will be faced with the problem of properly processing the oil into a high-quality product. Therefore, U.S. marketing strategy will be to provide technical assistance to Hungary's vegetable oil industry and research institute in respect to processing and utilization of soy oil.

In addition to oil and meal, the Hungarians have shown interest in the use of soy protein in various food products. Therefore, there is a need to provide information on the application of soy protein to the Hungarian's daily diet. In 1977, Hungary imported 139 tons of U.S. soy proteins.

## POLAND

The Polish Government has become cautious about expanding imports due to its severe trade deficits. It has, however, embarked on a program to increase animal protein and currently has a large and rapidly growing livestock industry. To maintain this industry, sizable volumes of protein feed are needed, and the country in 1976 ranked as the leading U.S. soybean meal market in Eastern Europe. A market should continue to exist in Poland for imported soybeans and meal, but opportunities to expand U.S. exports will depend primarily on the price competitiveness and the quality of U.S. meal. The potential for growth in vegetable oil consumption seems favorable owing to increasing disposable income and expanding use of margarine. Also, Poland is the largest user of soy proteins.

### Oilseed Situation

**Production.** Rapeseed, principally the Kzepack variety (oil content is 46-47 percent), is the primary domestic oilseed crop. Poland's 1976 rapeseed crop totaled 983,000 tons, up about 35 percent from the 1975 crop of 726,000 tons. The 1977 crop production fell to 696,000 tons as a result of heavy summer rains and flooding across the country.

Efforts to grow soybeans have been unsuccessful owing to unsuitable climatic conditions. On the other hand, improved domestic supplies of rapeseed and expanded domestic crushing capacity have resulted in a drop in vegetable oil imports. Refined edible oil production has increased over the last 5 years, showing gains each year, and reaching 51,000 tons in 1976, compared with 33,000 in 1971. Shortenings and margarine also have shown production increases over the past 5 years.

Edible oil products appear to be in satisfactory supply in the marketplace. Consumption of vegetable oil is growing slightly in Poland, but there is not

much preference on the part of Polish housewives for specific vegetable oils.

As illustrated, the trend toward consumption of vegetable oils and products at the expense of animal fat continued in 1976, partly as a result of consumer preference. However, Poland has been importing significant amounts of lard in the face of a persistent shortage of domestic meat supplies. Thus, some additional lard probably supplemented meat in the Polish diet during 1977, and animal fat consumption may have shown an increase as a result of the meat replacer phenomenon, rather than because of consumer preference.

TABLE 3.—POLAND'S PER CAPITA CONSUMPTION OF FATS AND OILS OF VEGETABLE AND ANIMAL ORIGIN

[In Kilograms]

Year	Vegetable oil	Animal lard	Butter
1972 .....	5.8	7.1	5.4
1973 .....	6.2	7.6	5.5
1974 .....	6.5	7.4	5.6
1975 .....	6.5	7.3	6.1
1976 .....	6.8	7.2	6.4

Source: Attaché reports.

**Imports.** Large quantities of soybeans are imported only when the domestic rapeseed crop fails. As a result of the good rapeseed crop in 1976, soybean imports declined to 55,643 tons from 120,422 in 1975.

At the present time, crushing facilities are not adequate to supply domestic feed requirements for soybean meal. Consequently, in addition to importing soybeans, Poland is Eastern Europe's major importer of soybean meal, with the United States and Brazil its major sources of supply. In 1976, Poland imported 567,000 tons of soybean meal, of which 391,599 tons came from the United States. This represented 69 percent of the market share, compared with only 37 percent, in 1975. In 1977, takings from the United States declined to 108,488 tons as a result of better prices from Brazil and quality problems in protein content.

Because of the scarcity of meat products, the meat industry in Poland is committed to the use of edible soy protein in local food products. Increased use of soy protein is becoming a priority goal, and within the next few years consumption of soy protein will grow considerable. Already, it has grown from nothing in 1973 to 10,634 tons in 1977. The United States granted Poland an additional \$3 million in CCC credit for the import of more than 6,000 tons of soy protein in 1977/78.

*Right, loading U.S. soybeans for export. Below, sausages in a meat processing plant in Poland, where soy protein is being used as a meat extender and soybean meal is going into production of livestock feeds for the country's important swine and poultry industries.*



*Packing canned hams, above right, and making sausages, right, in a Polish meat packing plant that exports to the United States. Large quantities of imported U.S. soybean meal are used by the Polish swine industry, an important export industry.*



**Crushing plants.** Poland has seven large crushing mills, with a combined crushing capacity of 500,000 tons. A vegetable oil plant that can process 1,000 tons per day is scheduled to begin operation in 1979. It will process sunflowerseed and rapeseed first, with soybeans filling out the vegetable oil requirements.

Poland has a modern mixed feed industry. Feed mills are controlled by the Association of Feed Mills under the Ministry of Agriculture for Food. Feed ingredients, including soybean meal, vary according to the formulas provided through the Ministry by the Scientific Council of Poland and research consultants.

There are 300 feed mills in Poland, 30 of which are considered large. To double capacity, the Government reportedly built 16 new plants during 1976/77 and plans 19 more for the future.

Many plants use British automatic equipment, and have operations that are controlled by formula cards. The use of soybean meal in these plants ranges from 5 to 20 percent, depending upon the type of livestock feed. Soybean meal is used in other feed formulas in combination with varying quantities of rapeseed and peanut meal.

## Livestock Situation

Production of livestock has increased steadily in recent years (with the exception of 1976) but not sufficiently to satisfy domestic demand for meat. The Government of Poland is developing industrial livestock farms to improve the efficiency of its livestock sector. Although these industrial livestock farms will gain importance, the impact of their production will not be fully realized until 1980.

The Polish Government also is encouraging owners of private farms to engage in livestock production to help alleviate chronic meat shortages. Two factors have aggravated the meat shortage:

- Growth in per capita disposable income has generated increased demand for meat sold at controlled prices; and
- Erratic feed supplies have resulted in periodic heavy slaughter and consequent production slumps.

The 1976-80 5-year plan calls for an annual per capita meat consumption of 79-80 kilograms by the end of the period. However, the Government hopes to boost its meat production through increased animal productivity and processing efficiency, rather than through a significant animal population increase.

In 1978, production of beef and veal is expected to increase by 2 percent; swine production, by 3 percent; and poultry production, by 14 percent. The mixed feed industry's production is expected to increase by 6 percent, from 8.7 million tons in 1977 to 9.2 million in 1978.

TABLE 4.—POLISH PRODUCTION OF LIVESTOCK PRODUCTS, 1971-76

[In metric tons]

Year	Beef and veal	Pork	Poultry	Lamb
1971 .....	642,000	1,357,000	150,000	29,000
1972 .....	586,000	1,643,000	172,000	30,000
1973 .....	627,000	1,833,000	196,000	29,000
1974 .....	808,000	1,948,000	223,000	28,000
1975 .....	870,000	1,852,000	254,000	26,000
1976 .....	900,000	1,600,000	297,000	25,000

Source: *Eastern Europe Agricultural Situation*  
Foreign Agricultural Economic Report No. 134

Potatoes rank as the most important feed ingredient used by Poland's swine industry, while about one-half of the country's protein feed needs come from domestically produced rapeseed meal.

To sustain growth in the livestock industry, mixed feed production capability will need to be increased significantly. In fact, Government goals for mixed feed production indicate that in 1980, capacity will need to be double that of 1975. Mixed feed production in the recent past, together with the Government goal for 1980 (in million metric tons), was as follows: 1974, 6.4; 1975, 7.4; 1977, 8.7; 1978, 9.2 (estimate); 1980, 14.0 (projection).

## Problems

Poland has hard currency problems in that there are limitations on the hard currency available for purchasing soybean products. However, an even greater obstacle to increased use of soybeans and products is Poland's relatively limited use of mixed feed containing soybean meal, especially among private farmers. Only after a major breakthrough on the large state farms with feeding trials can the private Polish farmer be convinced to use mixed feed. In respect to soy oil and soy protein, recent problems with lack of experience in use and improper processing could limit future demand for these products by Polish consumers.

## The Future

An increasing demand for livestock-origin products is expected to continue in Poland. Along with this, the Government of Poland reportedly is planning to modernize its mixed feed industry, starting with about 15 new feed plants that will increase Poland's total mixed feed output by about 10 percent.

The Government of Poland is planning to create a buffer against any future shortage of protein meal by the production and utilization of domestic sources of animal protein feed. These products represent a serious competition to U.S. soybeans. Likewise, fishmeal and peanut meal compete with soybean meal.

Poland imports sunflowerseed from the USSR and several other CEMA countries. Although the United States is the primary supplier of soybeans, meal, and oil, Brazil is making significant inroads into the market. Brazil and Poland have signed a trade agreement calling for \$3.2 billion in bilateral trade between 1976-80, with soybeans one of the most important agricultural commodities mentioned in the agreement. The agreement—the largest step Brazil has taken to expand trade with CEMA countries—will undoubtedly motivate other socialist countries to step up their lobbying in Brasilia for increased and more balanced trade with Brazil.

Major U.S. market development efforts in Poland through 1985 will be directed toward promoting increased use of mixed feed for livestock, swine, and poultry and encouraging optimum use of soybean meal through technical servicing.

Soy protein seminars and related activities will be continued so as to maintain and expand the use of this product. The sausage meat industry has reverted back to its 1973 levels, that is, soy flour rather than soy protein isolates is being used in sausages. As a result, sausages are of low quality, and people refuse to buy them. This is one reason why soy protein activities will be important in the coming years if Poland is to increase meat consumption. Poland imported 10,634 tons of soy protein from the U.S. in 1977. This is up 376 tons from 1976.

## ROMANIA

Long-term opportunities for soybean sales to Romania are limited, owing to the country's potential to become self-sufficient in oilseeds. However, the expanded livestock sector currently is using more protein meal than can be supplied domestically. Moreover, it is doubtful that production goals of the 1976-80 plan can be fulfilled without optimal weather conditions throughout the 5-year period. Romanian agriculture historically has been affected by floods, droughts, and (more recently) earthquakes. Great losses in the agriculture and food sector occurred in the earthquake of March 1977.

The Romanian Government gained interest in U.S. soybeans because of the 1976 extension of CCC credit (which has subsequently been withdrawn). Potential for expansion of soy oil use in Romania is limited, owing to the domestic production of sunflower oil.

## Oilseed Situation

**Production.** Sunflowerseed is Romania's major oilseed crop, accounting for about two-thirds of total oilseed output. Sunflowerseed production has been sporadic over the years, however, as evidenced in the following tabulation (in metric tons):

1971 .....	791,000
1972 .....	850,000
1973 .....	756,100
1974 .....	681,000
1975 .....	728,000
1976 .....	806,400
1977 .....	<sup>1</sup> 700,000

<sup>1</sup>Estimate.

The poor production of sunflowerseed in 1977 is attributed to unfavorable weather conditions in late September, when heavy rain and low temperatures caused significant losses to this important hard currency earner for Romania.

Romania also produces small quantities of rapeseed (18,000 tons in 1976, versus 17,000 in 1975) and significant quantities of soybeans, as shown below (in metric tons):

1971 .....	165,000
1972 .....	186,000
1973 .....	244,000
1974 .....	298,000
1975 .....	213,000
1976 .....	225,000

Romania is attempting to increase soybean production and already is the only East European country with a soybean crop of any significance. However, a lack of information on modern production techniques has inhibited yields—a deficiency the Department of Cooperative Agriculture is working to overcome through a farm education program aimed at improving know-how of farmers.

Soybean meal consumption has climbed drastically over the last 11 years from only about 20,000 tons in 1966 to 430,000 in 1976.

**Imports.** Romanian imports of soybeans in 1976 came to about 300,000 tons, of which the United States supplied 220,500 tons. This is a large increase over U.S. exports to Romania in 1975 of 15,463 tons. In 1977, U.S. exports there fell to 137,381 tons.

Soybean meal imports from the United States totaled 98,000 tons in 1976, up 86,000 tons from 1975's. Total soybean meal imports in 1976 are

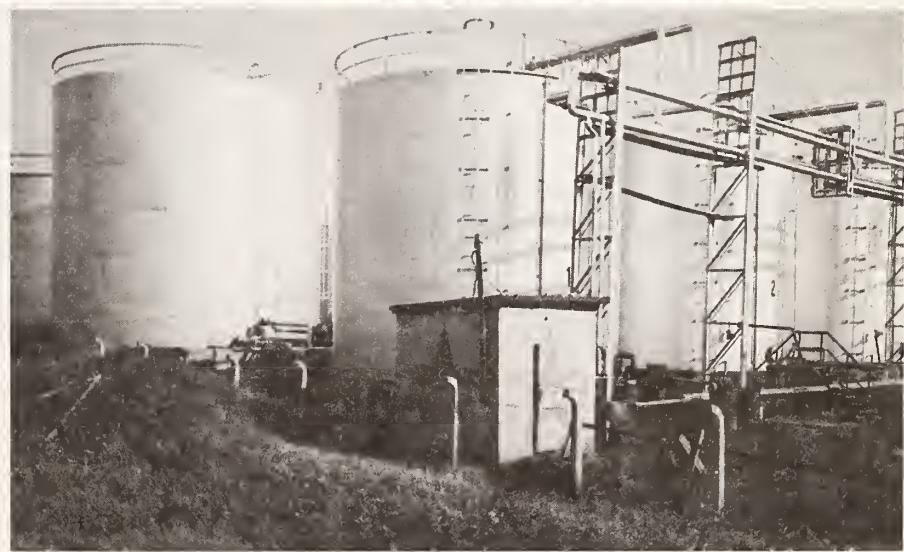
Right, harvesting U.S. soybeans. Increasing amounts of U.S. soybean products, and soybean meal in particular, are being exported to Eastern Europe.



Below, officials in Romania inspect plantings of sunflower—the country's leading oilseed crop.



Above, a mixed feed plant in Poland. Above right, sunflowers, the leading oilseed crop in Eastern Europe. Right, soybean oil storage tanks at the Yugoslav port of Koper on the Adriatic Sea south of Trieste.



reported to have reached 160,000 tons, with Brazil supplying over a third.

These imports may decline in coming years, however, since Romania is striving to eliminate soybean meal imports through increased domestic production of soybeans and other proteins. This is evidenced in 1977 U.S. exports to Romania, which fell to 47,268 tons.

Romania is interested in obtaining CCC Credit for soybean product imports from the United States. In April 1976, the United States granted a \$22 million line of credit under the CCC Export Credit Sales Program. This agreement expired at the end of 1976. To date, Romania has bought 200,000 tons of U.S. soybeans for delivery during 1977-78. This figure is expected to increase further this year since Romania has been approved for \$23 million in CCC Credit.

**Crushing plants.** Romania has the largest crushing capacity in all of Eastern Europe—six large crushing plants with a crushing capacity of 700,000 metric tons. Vegetable oil production totaled 322,000 tons in 1976, virtually unchanged from 1975's 321,000 tons. Sunflowerseed oil is the preferred oil for most household uses. Soybean oil is used mainly in blends for cooking oil or in margarine and shortening, although some pure soybean oil in consumer bottles is sold in retail outlets. Retail prices of sunflowerseed oil and soybean oil are the same.

The oil processing mills of Romania crush and refine a variety of vegetable oilseeds, including sunflowerseed, soybeans, castorbeans, rapeseed, flaxseed, and corn. Sunflowerseed oil is the major food oil produced and consumed. The mills can refine for food uses as well as fractionate for industrial use. Food oils, both liquid and hardened, are usually blends.

### Livestock Situation

Romania is emphasizing use of mixed feeds by modern production units in a drive to boost production of meat and meat products—already Romania's leading export for hard currency. Beef production in 1976 increased to 285,000 tons, 25,000 tons over that of 1975. Pork production also rose, from 724,000 tons in 1975 to 830,000 in 1976, and poultry production increased from 273,000 tons to 300,000. All these increases represented record production figures for their respective commodities. Romania and Bulgaria were the only two East European countries that showed increases in the three livestock categories.

Exports of meat and meat products increased from 61,300 tons in 1971 to 164,000 in 1975. Most of this gain was in pork.

Domestic demand for protein meal continues to expand more rapidly than production. The 1976-80 plan for livestock production calls for a growth rate faster than that of crop production, which will require importing proteins from outside the CEMA. In the past, domestic sunflowerseed, rapeseed meal, and imported fishmeal have been the main sources of protein. However, soybean meal is now considered a very desirable high-protein ingredient in feeds.

### Problems

Serious foreign exchange shortages inhibit opportunities for increases in imports. However, Romania achieved a small surplus in its balance of trade in 1976.

### The Future

Romania continues to push for expansion in its livestock industry and is placing added emphasis on the use of mixed feeds by modern production units.

This emphasis indicates that imports of soybeans and soybean meal will continue, although probably not at such high levels as in 1976. Soybean meal not only has strong potential as a feed ingredient for swine and poultry rations, but may also be used as a substitute fishmeal in livestock feed.

The Romanians plan to increase soybean production. However, the country is not expected to become self-sufficient in oilseed production.

USDA's market development effort through 1985 in Romania will be to develop activities that will lead to increased use of soybean meal in mixed feeding rations. In addition, activities will be developed to ensure that the oilseed crushing industry is producing high-quality soybean oil and soybean meal.

## YUGOSLAVIA

Yugoslavia's soybean meal and oil markets will remain strong in coming years. Soybean meal is accepted as an essential ingredient in the formulas of the mixed feed industry. Demand for protein feed exceeds domestic production and is expected to continue in excess of production for many years. Yugoslavia has cut its trade deficit by \$1.2 billion, agricultural production is expected to grow by about 4 percent a year through 1980, and per capita income is seen increasing by 18-19 percent.

### Oilseed Situation

**Production.** Yugoslavia's production of sunflowerseed increased by 52,000 tons, in 1976, while output of rapeseed and soybeans also rose.

There have been widespread reports of Yugoslav dissatisfaction with domestic soybean production because good corn land was diverted into soybeans—a crop considered by some to be relatively poor in terms of yield.

Self-sufficiency in oilseed production is one of the goals of Yugoslavia's 1976-80 5-year plan. Production targets for 1980 (in metric tons) are:

Sunflowerseed .....	750,000
Soybeans .....	120,000
Rapeseed .....	50,000

However, members of the agricultural sector have indicated that these levels are unrealistic.

TABLE 5.—YUGOSLAV OILSEED PRODUCTION, 1971-76  
[In metric tons]

Year	Sunflowerseed	Rapeseed	Soybeans
1971 .....	347	18	4
1972 .....	277	14	6
1973 .....	434	8	13
1974 .....	298	12	14
1975 .....	272	14	30
1976 .....	324	23	45

Source: *Eastern Europe Agricultural Situation*  
Foreign Agricultural Economic Report No. 134

Total salad and cooking oil production was 942,000 metric tons in 1976, or about the same as in the preceding year. However, soy oil, as such, has not had a traditionally big market in Yugoslavia in the recent past, since the Yugoslavs use mainly sunflower oil.

**Imports.** The United States has not been a traditional exporter of soybeans to Yugoslavia. Yugoslavia in most years has imported only crude soy oil and soy meal from the United States, although it did take 44,731 tons of soybeans in 1971, 31,671 in 1974 and 96,390 in 1977. This tendency apparently has been due to the lack of suitable crushing facilities for soybeans, since Yugoslav oilseed crushers process mainly sunflowerseed. The People's Republic of China (PRC), Romania, Canada, Italy, and Hungary have been past suppliers of soybeans.

With the dissatisfaction in domestic soybean production, Yugoslavia has had to import increased quantities of soybean meal and oil during the past several years. In 1976, 171,376 tons of soybean meal were imported from the United States, while Brazil supplied about 22 percent of Yugoslav soybean meal imports. In 1977, U.S. exports to Yugoslavia amounted to 108,488 tons.

The mixed feed industry prepares over 4 million metric tons of feed per year and views soybean meal as an essential ingredient in its feed formulas. Demand for protein feed exceeds domestic production and is expected to continue to do so for years to come.

The Deputy President of the Federal Committee for Agriculture has estimated Yugoslavia's 1977 import of protein feed at 410,000 tons. This includes both animal- and vegetable-based proteins. Yugoslavia's imports of soybean meal should increase proportionally in 1978, assuming prices are competitive with those for other protein feeds.

In 1976, Yugoslavia imported 89,800 tons of unrefined soybean oil, of which the United States supplied only 18,000 tons, compared with 49,000 in 1975. This loss came as Brazil captured most of the market in 1976, against only 19,974 in 1975. Prior to Brazil's 1975 entry into the market, the United States accounted for over 70 percent of Yugoslav imports of soybean oil.

Currently, Yugoslavia is using only a limited quantity (several hundred metric tons) of edible soy protein. However, the outlook is somewhat more promising, as a new processing plant to be built at Becef, with an annual capacity of 150,000 tons of soybeans, will produce only soy protein for human consumption.

**Crushing plants.** Yugoslavia's crushing industry is mostly geared to the crushing of domestic sunflowerseed, which accounts for about 90 percent of the total crush. This industry consists of 24 crushing plants, with a combined annual capacity of 750,000 tons.

Since January 1977, a new soybean crushing plant has been operating in the Yugoslav port of Zadar. It is a joint venture (49 percent foreign and 51 percent Yugoslav interest) of an Italian company and a consortium of about 20 Yugoslav companies. In about one year, its processing capacity will approach 360,000 tons of soybean meal, 60,000 of crude oil, and 2,000 of lecithin.

Another soybean crushing plant is planned at Vukovar in the central northern part of Yugoslavia. Crushing and storage capacity of this plant will be about 150,000 tons each.

Yugoslavia also is considering a joint venture with an American partner, and plans to build a 150,000-ton capacity plant at Becef.

## Livestock Situation

Yugoslav meat production declined in 1976, mainly as a result of a decrease in pork production, which fell 9 percent to 596,000 tons from 646,000 in

1975. Total meat production fell only 3 percent, however, owing to increased output of beef and veal, lamb, and poultry.

TABLE 6.—YUGOSLAV MEAT PRODUCTION, 1971-76  
[In 1,000 metric tons]

Year	Beef and veal	Lamb	Pork	Poultry
1971 .....	274	52	611	149
1972 .....	277	50	561	144
1973 .....	286	50	503	160
1974 .....	328	49	645	181
1975 .....	351	56	646	188
1976 .....	360	57	596	205

Source: *Eastern Europe Agricultural Situation*  
Foreign Agricultural Economic Report No. 134

According to recent studies, Yugoslavia will have a lower grain consumption growth rate in coming years and, consequently, will need to substitute oil meals for grain in livestock feeds. The livestock industry will continue to expand, hardly keeping pace with the growing domestic and foreign demand. Domestic demand will increase, not only due to population growth but also to an increase in per capita income.

Because of a decline in livestock inventories, Yugoslavia in recent years has raised retail prices and diverted meat from the export to domestic market. Despite the price increases, a serious meat shortage developed in 1976, followed by some easing of the situation as livestock inventories rose in 1977.

## Problems

U.S. soybeans and products face two primary problems in Yugoslavia—the Government's policy of agricultural self-sufficiency and shortages of hard currency. Another problem to overcome is the livestock producers' reluctance to use proper rations of mixed feed. Pork producers, for instance, think that soybean meal produces soft pork.

## The Future

Yugoslavia presents a favorable market opportunity for increased use of U.S. soybean meal as a protein supplement in mixed feeds for poultry, swine, and livestock.

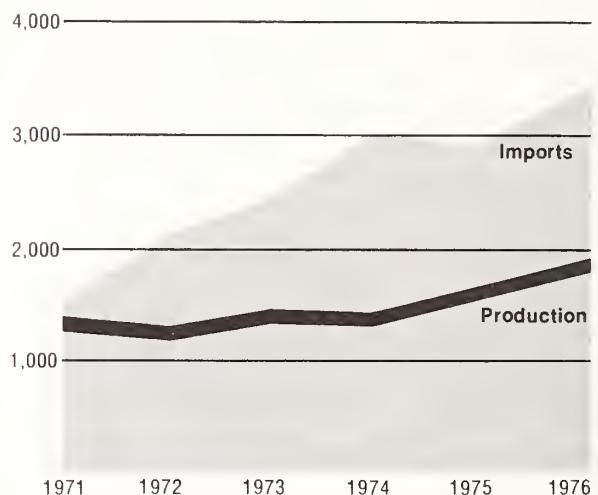
Currently, Yugoslavia is using only a limited quantity (several hundred metric tons) of edible soy protein. However, the outlook is somewhat more promising as the new processing plant to be built at Becef with an annual capacity of 150,000 tons of soybeans will produce only soy protein for human consumption.

To capitalize on market opportunities in Yugoslavia for soybeans and products, FAS and its industry cooperators will make a major effort to promote increased mixed feed consumption for livestock, swine, and poultry.

Assistance also will be given to Yugoslav crushers to improve the quality of their end products.

In addition to the above promotional activities, appropriate Yugoslav teams—representing the crushing, vegetable oil, and soy protein industries—will visit the United States to study processing and production of soybeans.

EASTERN EUROPE'S  
Production of Oilseeds  
and Imports of Soybean Meal &  
Soybeans (in meal equivalent)  
(In 1,000 metric tons)



## Appendix

Table 1.—U.S. EXPORTS OF SOYBEANS, SOYBEAN OIL, AND SOYBEAN MEAL TO EASTERN EUROPE, 1971-77

[In metric tons except for totals, which are in U.S. dollars]

Country and Item	1971	1972	1973	1974	1975	1976	1977
<b>Bulgaria:</b>							
Soybeans .....	0	0	0	0	0	8	645
Soybean meal .....	0	0	0	16,550	24,226	10,687	0
Soybean oil .....	0	0	0	0	0	0	0
Total value <sup>1</sup> .....	0	0	0	3,181,000	3,543,660	1,592,000	284,568
<b>Czechoslovakia:</b>							
Soybeans .....	2,026	0	7,241	0	0	0	0
Soybean meal .....	78,658	124,593	145,421	79,889	117,342	178,808	102,276
Soybean oil .....	0	0	0	0	0	0	0
Total value <sup>1</sup> .....	7,928,082	14,093,960	45,463,200	15,135,000	18,149,126	27,330,866	17,125,965
<b>German Democratic Republic:</b>							
Soybeans .....	15,431	0	0	0	0	0	0
Soybean meal .....	0	0	33,141	0	0	0	24,435
Soybean oil .....	0	0	0	0	0	0	0
Total value <sup>1</sup> .....	1,774,411	0	10,765,000	0	0	0	5,117,753
<b>Hungary:</b>							
Soybeans .....	12,345	0	0	376	134	0	0
Soybean meal .....	146,711	57,559	86,591	117,793	195,812	70,359	46,623
Soybean oil .....	738	375	8	463	0	0	0
Total value <sup>1</sup> .....	16,004,892	6,736,902	14,704,132	26,013,930	34,933,670	14,521,231	12,254,864
<b>Poland:</b>							
Soybeans .....	67,830	81,432	147,615	126,324	120,422	55,643	0
Soybean meal .....	90,881	99,087	312,320	250,151	201,028	391,599	41,262,298
Soybean oil .....	3,260	0	0	0	0	5,037	0
Total value <sup>1</sup> .....	17,718,147	21,446,352	94,125,000	94,738,000	64,839,709	87,346,564	41,262,298
<b>Romania:</b>							
Soybeans .....	0	3	19,470	0	15,463	220,504	137,381
Soybean meal .....	0	51,776	168,246	103,656	12,674	98,023	47,268
Soybean oil .....	0	0	0	0	0	0	0
Total value <sup>1</sup> .....	0	5,857,278	34,194,000	25,455,000	5,391,748	62,984,019	55,348,152
<b>Yugoslavia:</b>							
Soybeans .....	70,309	67,809	42,413	51,801	539	0	96,390
Soybean meal .....	117,071	134,905	168,277	221,725	12,599	171,376	108,488
Soybean oil .....	88,948	103,494	32,198	39,689	49,053	0	0
Total value <sup>1</sup> .....	47,572,518	84,504,490	52,489,348	85,629,022	36,898,006	27,056,592	46,310,496

<sup>1</sup> Approximate.

Source: U.S. Foreign Agricultural Trade Statistical Report Calendar Years 1972, 1974, 1976.

Table 2.—EAST EUROPEAN SOYBEAN MEAL IMPORTS, 1971-76

[In metric tons]

Country	1971	1972	1973	1974	1975	1976
Bulgaria . . . . .	62,150	88,373	99,266	228,400	180,000	219,800
Czechoslovakia . . . . .	229,502	367,329	506,613	254,934	245,572	480,000
East Germany . . . . .	540,000	710,000	655,000	705,000	745,000	734,000
Hungary . . . . .	242,372	242,060	305,728	462,274	440,000	370,000
Poland. . . . .	113,458	256,174	499,455	484,575	539,200	567,000
Romania . . . . .	51,200	116,900	214,900	227,000	267,900	320,000
Yugoslavia . . . . .	138,571	155,105	276,699	287,775	137,701	218,553

Source: Agricultural Attache reports and Foreign Commodity Analysis Oilseeds and Products Division - Survey sheets.

Table 3.—EAST EUROPEAN PRODUCTION OF SUNFLOWERSEED, RAPESEED, AND SOYBEANS, 1971-76

[In metric tons]

Country and Item	1971	1972	1973	1974	1975	1976
Bulgaria:						
Sunflowerseed . . . . .	462,000	494,000	448,000	368,000	426,000	355,000
Rapeseed . . . . .	-	-	-	-	-	-
Soybeans . . . . .	12	12	30	32	80	100
Czechoslovakia:						
Sunflowerseed . . . . .	5,000	6,000	7,000	4,000	5,000	7,000
Rapeseed . . . . .	101,000	107,000	117,000	94,000	131,000	131,000
Soybeans . . . . .	-	-	-	-	-	-
German Democratic Republic:						
Sunflowerseed . . . . .	-	-	-	-	-	-
Rapeseed . . . . .	197,000	234,000	246,000	298,000	363,000	320,000
Soybeans . . . . .	-	-	-	-	-	-
Hungary:						
Sunflowerseed . . . . .	149,000	132,000	152,000	120,000	154,000	165,000
Rapeseed . . . . .	71,000	52,000	68,000	45,000	65,000	66,000
Soybeans . . . . .	-	-	-	15,000	44,000	55,000
Poland:						
Sunflowerseed . . . . .	-	-	-	-	-	-
Rapeseed . . . . .	595,000	430,000	512,000	523,000	726,000	983,000
Soybeans . . . . .	-	-	-	-	-	-
Romania:						
Sunflowerseed . . . . .	791,000	850,000	756,000	681,000	728,000	806,000
Rapeseed . . . . .	-	-	-	16,000	17,000	18,000
Soybeans . . . . .	165,000	186,000	244,000	298,000	213,000	225,000
Yugoslavia:						
Sunflowerseed . . . . .	347,000	277,000	434,000	298,000	272,000	324,000
Rapeseed . . . . .	18,000	14,000	8,000	12,000	14,000	23,000
Soybeans . . . . .	4,000	6,000	13,000	14,000	30,000	45,000

Source: *Eastern Europe Agricultural Situation Review of 1976 and Outlook for 1977*, Foreign Agricultural Economic Report No. 134.

Table 4.—EAST EUROPEAN PER CAPITA CONSUMPTION OF ANIMAL AND VEGETABLE FATS AND OILS, 1960, 1965, 1975

[In kilograms]

Item	1960	1965	1975
Bulgaria:			
Vegetable oil . . . . .	9.5	12.2	14.0
Lard . . . . .	3.8	2.9	2.0
Margarine . . . . .	.0	.1	.2
Butter . . . . .	.7	1.1	1.5
Czechoslovakia:			
Vegetable oil . . . . .	4.0	5.9	6.0
Lard . . . . .	5.6	4.1	6.1
Margarine . . . . .	2.4	3.5	3.5
Butter . . . . .	6.0	6.6	7.4
East Germany:			
Vegetable oil . . . . .	2.2	2.2	2.2
Lard . . . . .	5.2	4.3	3.2
Margarine . . . . .	10.0	11.0	11.0
Butter . . . . .	15.6	15.6	15.6
Hungary:			
Vegetable oil . . . . .	0.8	2.0	3.4
Lard . . . . .	19.8	22.9	21.8
Margarine . . . . .	.5	.9	1.2
Butter . . . . .	1.4	1.8	1.9
Poland:			
Vegetable oil . . . . .	1.0	1.7	2.0
Lard . . . . .	7.4	7.1	10.0
Margarine . . . . .	2.5	4.9	5.5
Butter . . . . .	4.7	5.4	6.1
Romania:			
Vegetable oil . . . . .	4.8	6.7	8.8
Lard . . . . .	3.1	3.9	7.5
Margarine . . . . .	.1	.3	1.0
Butter . . . . .	.6	.8	1.1
Yugoslavia:			
Vegetable oil . . . . .	3.2	6.2	11.0
Lard . . . . .	7.1	7.0	10.0
Margarine . . . . .	.4	.7	1.0
Butter . . . . .	1.7	.9	.9

Source: *Factors Affecting the Marketing of Soya Oil in Eastern Europe* by Alex Cerne.

Table 5.—APPARENT CONSUMPTION OF SOYBEAN MEAL IN EASTERN EUROPE, ANNUAL 1965-75

[In 1,000 metric tons]

Country	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975
Bulgaria . . . . .	10	20	10	40	40	70	70	100	110	230	220
Czechoslovakia . . . .	30	40	40	40	20	160	250	380	520	270	320
East Germany . . . .	150	350	220	220	360	410	490	770	700	740	680
Hungary . . . . .	40	50	70	100	140	190	240	260	310	480	440
Poland . . . . .	60	80	110	100	180	160	170	330	610	630	659
Romania . . . . .	10	20	40	60	60	80	120	240	350	400	410
Yugoslavia . . . . .	90	80	150	90	110	160	120	150	170	260	150
Total . . . . .	390	640	640	650	910	1,230	1,460	2,230	2,770	3,010	2,870

Source: Foreign Agriculture Circular, Oilseeds and Products, FOP 21-76, December 76.

Table 6.—SOURCES OF EASTERN EUROPE'S SOYBEAN MEAL AND SOYBEAN IMPORTS, 1971-77

[Meal equivalent]

Source	1971	1972	1973	1974	1975 <sup>1</sup>	1976 <sup>2</sup>	1977 <sup>3</sup>
United States. . . . .	655	650	1,220	1,572	1,276	1,675	1,525
Brazil . . . . .	260	542	405	822	1,382	1,500	1,575
Western Europe . . . . .	655	912	801	603	283	225	200
People's Republic of China . . . . .	16	16	0	33	3	0	0
Argentina . . . . .	0	0	0	0	33	25	50
Total <sup>4,5</sup> . . . . .	1,586	2,121	2,424	3,038	2,977	3,425	3,350

<sup>1</sup> Preliminary. <sup>2</sup> Estimated. <sup>3</sup> Forecast. <sup>4</sup> May not add to total because of rounding. <sup>5</sup> Romanian soybean shipments to Yugoslavia in 1974 have been included in the total but have not been listed separately because of the small amount involved.

Source: *Eastern Europe Agricultural Situation*, Centrally Planned Countries Program Area, Foreign Demand and Competition Division, ESCS.







UNITED STATES DEPARTMENT OF AGRICULTURE  
WASHINGTON, D.C. 20250

OFFICIAL BUSINESS  
PENALTY FOR PRIVATE USE, \$300

If you no longer need this publication, check here \_\_\_\_\_ and return this sheet and/or envelope in which it was mailed and your name will be dropped from mailing list.

If your address should be changed \_\_\_\_\_ PRINT OR TYPE the new address, including ZIP CODE and return the whole sheet and/or envelope to:

FOREIGN AGRICULTURAL SERVICE, Room 5918 So.  
U.S. Department of Agriculture  
Washington, D.C. 20250

POSTAGE AND FEES PAID  
U.S. DEPARTMENT OF  
AGRICULTURE



AGR 101  
FIRST CLASS